

first finger is very slightly longer than the second and as long as the fourth; third finger longest. Tarsus with a mesial and lateral longitudinal row of distant tubercles, and a cutaneous fold on the inner side extending to the inner metatarsal tubercle. The tubercle on the outer edge scarcely so prominent as the inner one, which is elongate. Soles of the hind feet faintly tuberculate. Toes half-webbed; the tip of the first reaches the second joint of the second toe. Hind limb long; laid forward alongside the body the metatarsal tubercle reaches the eye, and one half of the foot extends beyond the snout.

Length 3 inches; hind limb from anus to tip of second finger 4·2 inches.

Colour yellowish, a dark spot on each eyelid; another oblique one from the hind edge of the eye to the tympanum, and a third very small one on each nostril; fore and hind legs with 2-4 transverse blotches on their upper surface. Sides of the first and upper surface of first and second fingers black. Under surface pale yellowish. Tips of toes slightly swollen and of a brownish colour.

These specimens come near to *Bufo olivaceus*, Blanf. (East Pers. p. 434, pl. xxviii. fig. 3), but differ from it by having the dorsal surface closely set with horny-tipped tubercles, a flat instead of a concave crown, by its under surface being smooth and not tuberculate, and by its shorter hind limbs. From *B. vulgaris* it is distinguished by its longer hind limbs, having a cutaneous tarsal fold, a distinct tympanum, and no dark band below the parotoid.

XIV.—*Additions to the Reptilian Fauna of Sind.*

By JAMES A. MURRAY.

SINCE the publication of my work on the 'Vertebrate Zoology of Sind,' a collated descriptive account of all the species of mammals, birds, and reptiles (including several new species) known to inhabit the province, some little interest appears to have been aroused in zoological inquiries, which has resulted in the Kurrachee Museum acquiring several collections of reptiles from hitherto unknown localities in Upper Sind.

Among these are four species from the barren sandy wastes of the frontier districts, collected by my indefatigable corre-

spondent Mr. F. Gleadow, of the Forest Department, three of which I believe are undescribed forms. These are:—

1. *Melanochelys pictus*.

Head two thirds as broad as long, its greatest length 3 inches. It is covered with skin, divided into plates; a long central one above a single broad frontal; a superciliary on each side, and a small subtriangular plate behind in suture with the sides of the central plate. Temples covered with numerous irregular-shaped plates. Upper jaw with a small festoon on each side, the groove in the middle of the jaw rather deep. A plate in front of the eye in suture with the sides of the frontal; another nearly as large under the orbit, and a third about twice the size of the latter behind the eye. Anterior half of neck covered with small subimbricate plates in transverse series. Shell oblong-ovate, elevated, much arched, nearly half as high as long, nodosely tricarinate, the costal carina being much nearer the vertebral carina than the marginal plates. Length of shell over curves 14 inches; breadth over vertebrae 11.75 inches. The sternum is bent upwards from the suture of the pectorals with the postgulars; greatest length of sternum to point of furcate projection of anal plates 12 inches. Anals deeply notched posteriorly, the distance between the projecting ends being 1.5 inch and the depth of notch 1.37 inch. Width of sternum at axillary incision 6 inches, at inguinal 4.75. Gulars together broader than long, their hind margin received into the subtriangular concavity in front of the postgulars, which are as broad as long. Pectorals very narrow, each 3×1.5 inches, the suture between them about equal in length to that of the postgulars and slightly more than half of that of the abdominals. Abdominals nearly rectangular, winged beyond the inguinal incisions, and forming a suture on each side with the inguinal plate and sixth marginal. Postabdominals longer than broad, the length of their suture together slightly less than that of the abdominals; transverse sutures of postgulars with abdominals and abdominals with postabdominals straight; suture of postabdominals with anals concave; the suture together of the anal plates is shorter than the suture of a single one with the postabdominal. Nuchal plate oblong (0.75×0.5 inch). Vertebrae hexagonal; first somewhat bell-shaped, convex in front, straight behind (except a concavity mesially to receive an apophysis of the second vertebral), sinuately concave on each side in its anterior half and convex lower down. Second and third vertebrae hexagonal, as broad as long; fourth

similar, but concave behind in suture with the convex front of the fifth, which is about twice the size of the other vertebrals, broader than long ($2\cdot37 \times 3\cdot37$ inches), with the sides sloping outward to the last marginal; its suture with the caudals is straight. Caudal notched, the suture of both plates a little more than half the length of the fifth vertebral. Tail short, 1·5 inch in length. Costals large, four in number, nodosely carinate on their upper margin, but not extending, or scarcely seen on the fifth vertebral. The first costal is subtriangular and largest, convex in front, in suture with one half of the first and the whole of the upper margin of the second, third, and fourth marginals; second costal in suture with the fifth and sixth marginals, its greatest breadth about two thirds its greatest length ($4 \times 2\cdot75$ inches); third costal in suture with the seventh, eighth, and anterior third of the ninth; it is nearly the size of the second in length and breadth; fourth costal smallest and forming sutures with the posterior two thirds of the ninth marginal, entire tenth, mesially the apex of the eleventh, and the sides of the fifth vertebral. Marginals variable in size, not serrated posteriorly, but slightly dilated at the eighth, ninth, and tenth. Feet anteriorly covered with imbricate scutes, posteriorly, or higher up, subimbricate, the scutes much smaller. Toes short, strong, and webbed to the claws; they are covered with annular scute-like plates. Claws strong and hooked. Sides of the legs fringed with large scales. Colours: all the scales on the tarsi and feet with a yellow spot. Head black, with large spots, blotches, and streaks of yellow; a patch on each side of the snout, also on each side of the nostrils; one under each eye, another at the maxilla on the labial margin, and two behind each eye. There are also some large blotches on the tympanic and temporal regions, and three on each side of the lower jaw. Shell olive or greenish brown, the marginals, lower part of costals, and vertebrals with pale yellowish blotches and streaks of irregular shape. Sternum pale yellow, with linear transverse lines, very close together on the abdominal plates, and forming a large patch. The gulars and postgulars are not marked.

Mr. Gleadow, obtained this species in the Sind "*Doro*," in the Kushmore Talooka, Upper Sind.

It differs from all the described forms of *Melanochelys*, first by its greater size, next by the size and shape of the vertebrals and costals, and lastly by the markings of the shell and the spotted character of the head and feet.

2. *Hemidactylus kushmorensis*.

Head rather depressed. Rostral grooved above, slightly wider than high. Upper labials 10; lower labials 8. Two pairs of chin-shields, the first only in contact. Muzzle covered with granular scales. Nostrils between the rostral, first labial and three small shields behind about equal in size to those covering the muzzle. Crown of the head interspersed with numerous rounded tubercles. Back with rounded tubercles arranged in twenty-two longitudinal series across the middle of the body; a few tubercles between the hind limbs are subtriangular. Tail verticillate, each verticil armed laterally with three rows of rather elongate subtriangular tubercles, except on its posterior third, where they are replaced by imbricate scales. Fore and hind limbs on their upper surface studded with round tubercles. Toes covered with imbricate scales. Claw on thumb well developed. Scales on the throat about one third the size of those on the abdomen, across the middle of which they are arranged in 32-36 longitudinal series; the anterior half irregularly and minutely 1-3 crenulate, less conspicuous on the posterior half.

Femoral pores 10-12 on each thigh. Under surface of tarsi covered with large imbricate scales. Subcaudals single, 44-46. Middle toe with six pairs of plates and an odd one at each end.

Colours neutral grey or brown, with three rows of squarish dark blotches, forming either longitudinal or obliquely transverse interrupted bands; a few smaller spots on the sides. A dark streak through the eye with a pale line above it. Scales on the under surface of the body freckled with 1-3 dark spots; many, especially on forward part of body, without them. Tail with 14-15 dark bands. Pupil vertical.

Hab. Upper Sind, Kushmore and Thool Talookas.

Two only of six specimens with unreproduced tails. Length 4 to 4.25 inches. Type from Bhaner, Upper Sind frontier.

Differs from all the other species of the genus in having a greater number of dorsal tubercles, also femoral pores, except *H. Gleadowi*, and fewer abdominal scutes, except *H. triedrus*, and in having rounded tubercles.

The following Table will sufficiently show the differences between it and the other allied species of the genus:—

| Species. | Dorsal tubercles. | Abdo- minal scutes. | Pores. | | Labials. | | Length in inches. |
|---|----------------------|---------------------------|------------------------------|----------|----------|--------|-------------------------|
| | | | Femoral on each thigh. | Preanal. | Upper. | Lower. | |
| <i>Hemidactylus Gleadowi</i> , Murray (V. Z. Sind) | 15-16 | 38-39 | 13 | | 10-12 | 8-10 | 4.25 |
| <i>H. karachiensis</i> , Murray (V. Z. Sind) | 16 | 38-40 | | 6 | 9-10 | 8-10 | 3.5 to 4 |
| <i>H.</i> , sp., <i>Blanford</i> (E. Persia) ... | 14 | 40 | none | | 10 | 8-9 | 3.65 |
| <i>H. persicus</i> , <i>Blf.</i> | 16 | 42-44 | | 8 | 11-12 | 9 | 5 |
| <i>H. kushmorensis</i> , sp. nov. | 20-22 | 32-36 | 10-12 | | 9-10 | 8 | 4.25 |
| <i>H. subtriedrus</i> , <i>Jerd.</i> * | 18-20 | ? | 8 | | 7 | | 7 |
| <i>H. triedrus</i> , <i>Daud.</i> * | Nume- rous. | 30 | 7-8 | | 9-10 | 8 | 7 |
| <i>H. maculatus</i> , <i>D. et B.</i> * | do. | 37-41 | 10-14 | | 11 | 8 | 5 |
| <i>H. Pieresi</i> , <i>Kelaart</i> * | do. | 40-42 | 32-36† | | 11-12 | 10 | 9 |
| <i>H. gracilis</i> , <i>Blanford</i> * | do. | ? | | 6 | ? | ? | ? |

3. *Gymnodactylus scaber*, Rüpp.

Two specimens collected at Sukkur and one at Laki, between Shikarpoor and Sukkur, by Mr. F. Gleadow (see my preceding paper, "On Additions to the Fauna of Persia," for description of this species).

It replaces *Gymnodactylus petrensis* in Upper Sind.

4. *Acontiophis paradoxa*.

Acontiophis paradoxa, Günth. Proc. Zool. Soc. 1875, p. 232.

This snake was known from a single specimen only, the locality of which has only now been ascertained. I count ventrals 180, and subcaudals 52. My specimens are greyish brown; a dark line from behind the eye to the nape, a subovate dark patch on the occiput and a border along the margins of the occipitals from the anterior half of the superciliaries. A dorsal series of quadrangular dark spots with white interspaces, nearly of the same width to within an inch of the end of the tail, where they become smaller and more faint, and gradually disappear.

Total length of larger of two specimens 14.25 inches, of which the tail is 2.10 inches.

* From Günther and Theobald's works on Reptiles of Br. Ind.

† In a nearly continuous line.

Hab. Upper Sind, Thool Talooka, at Zungipoor, frontier districts.

Mr. F. Gleadow states that the two specimens of this snake were dug up from depressions a quarter-mile apart in a considerable area of blown sand forming hillocks 20 to 30 feet high.

XV.—On a new Species of *Lycopodites*, Goldenberg (*L. Stockii*), from the *Calciferous Sandstone Series of Scotland*.
By R. KIDSTON, F.G.S.

[Plate V.]

THE genus *Lycopodites*, as originally employed by Brongniart* and most of the older writers, did not contain any plant which was really entitled to the name, in so far as it was used to infer their closer affinity to the recent *Lycopodium* than that held by the genus *Lepidodendron*; and Brongniart, in his later writings, discarded his genus *Lycopodites*, as subsequent investigations had shown him that his original view of the plants he included in it was founded on an erroneous notion of their true nature†.

Hence, when Goldenberg resuscitated the genus *Lycopodites*, it was used by him in an entirely different sense from that to which it had been applied by previous writers, and in fact was a new genus though under an old name.

To enable us more clearly to appreciate the light in which Goldenberg regarded his genus *Lycopodites*, I quote his introductory remarks regarding it.

LYCOPODITES, Goldenberg. 1855‡.

“Branches with leaves placed spirally or in verticils. Sporangia placed in the axils of the leaves or forming terminal cones.”

“In the genus *Lycopodites* we place the true herbaceous Lycopods of former ages, which agree in all essential points so exactly with recent Lycopods that, at the most, they can only be regarded as a subdivision of the genus *Lycopodium*.”

“The fossil plants included by Brongniart and others under this name are probably only young twigs of *Lepidodendron*

* ‘Prodrome,’ p. 83 (1828), and ‘Classification des végétaux fossiles,’ p. 46 (1822).

† Tableau d. genres de Végét. foss. p. 40 (1849).

‡ ‘Flora Sarapontana Fossilis,’ Heft i. pp. 9, 10 (1855).